

AN ANALYSIS OF THE RELATIONSHIP
BETWEEN MATURATIONAL STATUS
AND PSYCHOLOGICAL STATUS
IN CERTAIN ADOLESCENT GIRLS

By
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CHAPTER I

INTRODUCTION

Adolescence, as observed in the American community, is recognized as a time of inner turmoil. Whether this period of stress is a cultural phenomenon, as anthropologists suggest, or is biological in origin is largely unknown. However, it is agreed that this stage of life is characterized by complex physiological and psychological changes. These changes occurring within the adolescent are not only profound but individually regulated. They may evolve very rapidly, or they may appear very slowly. Perhaps this variation within the maturation process may form the basis for many of the social and emotional problems experienced during the adolescent years.

Frequently, adolescents fall victim to the "tyranny of the norm" as applied by adults (Shock, 1944). This can be seen in the young girl who is developing into womanhood at a pace much slower or faster than the average. She may be confused by the standards and expectations imposed on her that seem unrelated to the forces developing within her (Frank, 1953). This conflict between behaving the way society expects and behaving the way one naturally feels may be the source for some of the turmoil experienced by the

adolescent. As a result of the possible psychological repercussions arising from individual differences in physical growth, new understandings seem to be required in coping with today's youth.

Historical Bases

Through the ages, scholars have stressed the interdependence of the physical and the psychological in the nature of man. Sheldon's (1942) constitutional theory, linking physique and temperament, is a prime example. During the last half century, efforts have been made to focus more attention on the significance of physiological age in the study of child development. Crampton (1908) theorized that every scientific study of children should contain some reference to physiological age. He used this term to refer to the stage of development in contrast to chronological age of years and months. Typical physiological measures include basal metabolism, blood pressure, pulse, and in girls, age at which menstruation first appears. Crampton further contended that in spite of the fact that there are both the immature and the mature present at all ages from ten to seventeen, children have been classified solely on the basis of chronological age. After a seven-year study of differential characteristics of pre-pubescents and post-pubescents, he concluded that there is great effort wasted when we treat dissimilar students with the same means and expect to get similar results. Apparently, with somewhat the same premise

in mind, Sigmund Freud predicted that someday psychological understanding would rest on a physiological base (Saul, 1960).

Recently, Krogman (1955) proposed a possible relation between rate of progress in physical growth and rate of progress in social maturity and emotional stability. He suggested that a definite relationship exists between soma and psyche (or body and personality) during the pubertal period.

The biology of growth is not necessarily basic in the development of psycho-social behavior, but it is certainly a conditioning factor and may be a determining factor (p. 455).

Thus, as Ausubel (1958) has observed, maturation has historical importance in theory and research relating to child development. Furthermore, some theorists stress the close interdependence existing between the physical and the psychological in the unfolding of human personality.

Need for Research

Although attention has been given to the importance of physiological age in studying adolescent growth, there appears to be need for further investigation involving the ontogenetic approach in which specific behavior as it is affected by age (in this context, developmental age) may be studied. The importance of maturational acceleration or retardation as a factor which may disturb personal adjustment during adolescence seems to deserve greater emphasis (Stolz, 1944). Accelerated or delayed emotional growth may

create serious anxieties in the mind of the adolescent girl concerned over differences between her growth and that of her friends. During the second decade of life, the individual girl is striving to be like her age-mates in many ways and is trying to reduce any feeling of being different. She is concerned with finding a place of acceptance among her peers (Stolz, 1944). On the other hand, she is searching for independence and a personal identity apart from her parents and friends. Contradictory efforts to attain individuality and conformity appear clearly during the adolescent years (Frank, 1953). Conflicts may arise when parents, expecting an adolescent girl to act in accordance with her chronological age, fail to understand the manner in which maturity level can affect behavior.

A child's maturational level has a direct bearing on his needs and abilities as he approaches learning situations. These needs and abilities, described by many authorities, provide educators with guides for evolving appropriate learning situations for different levels of maturity (Smith, Krouse, Atkinson, 1961). If teachers and counselors become more sensitive to these varying patterns of development, they may gain deeper understanding of a child's readiness for learning and behaving. In addition, if the school counselor possesses a more complete understanding of maturational levels and related personality components, he will be better prepared to guide the adolescent in his search for maturity.

It is hoped that studies of this nature will help adults who live and work with adolescents to understand that emotional behavior is clearly associated with the individual maturational process. Further research in this area may help dispel the adolescent's doubts and fears about being different and aid the young girl and her parents to understand more fully that the way in which she is growing and behaving is probably normal and appropriate for her stage of development.

Purpose of the Study

This research has been based on two assumptions:

(1) That the age at first menstruation, or menarche, may be used as a valid criterion for ascertaining physiological age, and (2) that emotional maturity is synchronized with physiological maturity. Literature and past research relating to the above premises will be discussed in Chapter II. In Chapter III it will be noted that this study was designed to compare physiological maturity with present psychological functioning. Generally, the following questions were considered:

1. Are there measurable personality differences among adolescent girls whose menarcheal age classifies them as early-, average-, or late-maturing?
2. Do early- and late-maturing girls differ significantly from average-maturing girls in personal problems expressed during adolescence?

3. Are adolescent girls whose physiological maturity is advanced or retarded perceived by their high school teachers to be emotionally mature or immature?

In seeking answers to these questions, subjects were selected from among the girls of a high school population of a central Florida community. Physiological maturity was represented by the age at onset of menstruation. To obtain some measure of psychological maturity, the study utilized three instruments, the Minnesota Counseling Inventory (Berdie and Layton, 1957), the Mooney Problem Check List, high school form (Mooney and Gordon, 1950), and the Psychological Maturity Scale (Appendix C), adapted from a study by Strang (1953).

Hypotheses

This research study was based on the assumption that if developmental age, as signified in girls by menarche, were recognized as a contributor to behavior, the adolescent girl would derive greater self-understanding, and parents and counselors could render greater assistance during the maturation process. With this assumption in mind, the following hypotheses were formulated:

- I. Personality problems, as revealed by the Minnesota Counseling Inventory, will be significantly greater for the early- and the late-maturers, in contrast to the average-maturers.
- II. Personal problems, as expressed on the Mooney Problem Check List, will be significantly greater for the early- and the late-maturers than for the average-maturers.

III. High school teachers will give higher ratings on psychological maturity to those adolescent girls who are older in terms of physiological age.

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

Introduction

This chapter begins with a brief discussion of the changes occurring during adolescence. Attention is focused on the menarche and its use as a criterion for ascertaining physiological maturity. Research is cited which pertains to the menarche and its relationship to psychological factors in personality. Finally, a description of the instruments used in this study is presented.

Changes Occurring During Adolescence

During adolescence, the transitional state from childhood to adulthood, many physiological changes occur. Shock (1944) described some of these changes in this way:

The endocrine changes in adolescence seem to be characterized by an increased secretion of the pituitary gland which stimulates the maturation of the sex glands. With maturation of the sex glands increased amounts of male or female sex hormones are liberated into the blood stream, stimulating growth and the development of accessory sex organs and resulting in the appearance of secondary sex characters (p. 76).

Fluhmann (1957) emphasized that the physiological changes in adolescent girls are controlled by the glands of internal secretion. There are definite morphologic changes in the ovaries, significant increases in the weight of the

thyroid and adrenal glands, and the involution of the thymus begins. There is an increase in basal metabolism rate during adolescence, which reaches a maximum near the time of the first menstruation and then declines. As menstruation approaches, there is a spurt to body growth, which is characterized by an increase of body length, weight, chest width, and the development within certain ossification centers. Additional physiological changes will be noted in later research relating to the menarche.

Associated with physiological changes during adolescence are important psychological changes. These are many and varied since adolescence is typically a period of psychological adjustment. Krogman (1955) described this stage of life as a period of intensified rate of growth distinguished by the emotional depths of self-awareness and the awareness of peers, particularly those of the opposite sex. Smith, Krouse, and Atkinson (1961) described adolescent feelings in this way:

There is an increase in the pupil's concern over self; there is a fear of being different; there is a fear of not being accepted. The youngster at this age has sensitivity to the opinions of both adults and peers, but he may be less responsive to his parents than to other adults (p. 583).

Other psychological changes observed in adolescence and which seem to be related to the menarche will be discussed later in this chapter.

The Menarche

The onset of menstruation in the sexual life of the woman has been referred to as one of the major physiological changes occurring during adolescence. Perhaps this is why the menarche has been selected as the topic of much study in the past.

During the last century, there has been a tendency for the onset of menstruation to occur earlier and for the whole process of growth to accelerate. The age of menarche has been decreasing about four months per decade over the years 1840-1960. Thus, a girl may expect to menstruate about ten months earlier than did her mother. Age at menarche has seemed to fluctuate with changes in rate of body development. In ancient Greece, where physical development was advanced, the menses began at the same early age as in most health-conscious groups of today. With the physical slump of the Middle Ages came a great retardation in time of menarche. Table 1 supports the thesis that in recent times the age of menarche seems to be earlier than in former years (Mills, 1937). In this thesis ages are expressed in years and months, and a decimal point is used to separate the two units.

Gould and Gould (1932) asserted that American women menstruate earlier than European women, and studies reported later in this chapter tend to support this position. This phenomenon of earlier menarcheal age causes wonderment about the influences affecting menarche. According to Greulich

(1944), the time at which menarche occurs is determined by chronological age and developmental status. He believed that good nutrition and general favorable environment tend to hasten the onset of puberty, and that inadequate diet, severe illness, and other unfavorable environmental conditions tend to retard it. Tanner (1961) agreed that better nutrition and an improved environment accounted for the acceleration of growth seen today but observed that in recent studies social class differences had seemed to play no part.

TABLE 1
Onset of Menses Through the Centuries

Area	Date	Mean Age
Ancient Greece		14.0
South Germany	1795	16.6
Munich	1864	16.3
Norway	1868	16.1
Munich	1880	15.4
South Germany	1920	14.5
New Brunswick	1935	14.1
American Mid-West	1935	13.0

For a long time it was thought that warm climate hastened the time of first menstruation, but the results of scientific investigation do not support this thesis. For example, Mills (1937) reports that:

The belief held for decades that bodily and sexual maturity comes earlier in tropical countries and is later in temperate zones must be given up. Carefully collected data show the exact reverse to be true. It can now be said that growth and bodily development proceed

most rapidly in regions of greatest climatic stimulation and that in regions of moist heat there is an evident progressive lag. Sexual maturity in tropical countries comes fully two years later than in the most stimulating temperate regions (p. 53).

In confirmation of Mills' findings, Gould (1932), Greulich (1944), and Horrocks (1951) observed that research had failed to verify that warm climate produces earlier sexual maturity. Finally, Tanner (1961) reviewed a study of Nigerian school girls whose menarcheal age mean was 14.3 and of Eskimo girls whose menarcheal age mean was 14.4, which seems to dispel the long-held notion that menarche is related to climate.

Contemplating further on the time of menarche, Tanner (1961) wrote that although some observers have said earlier age for menarche has been hastened due to earlier psychosexual stimulation and a freer climate of adolescent sexual experience in today's culture, there is absolutely no evidence to support this view.

Heredity has been suggested as a factor affecting time of menarche. In 1939 Shuttleworth stated that the advent of menarche, and hence the timing of endocrine stimulation, is largely determined by hereditary factors. A similar conclusion was reached by Tanner and O'Keeffe (1962), who examined the age at menarche of 346 Nigerian girls attending three Roman Catholic residential secondary schools. They found the mean age of first menstruation for these girls to be 14.07 with a standard deviation of 0.16. They

concluded that the age at first menstruation is dependent not only on genetical factors but also on environment.

Nicolson and Hanley (1953, p. 20) summarized ages at menarche found in the American studies made over the last four decades. Table 2 reveals this information and shows the earliest mean menarcheal age to be 12.6 and the latest to be 13.5

TABLE 2

Age of Menarche Reported in Various American Studies

Studies	N	Mean in Years	SD in Years
Brush Foundation	200	12.6	1.1
Harvard Growth Study	248	13.0	1.1
Chicago Laboratory School	487	13.5	1.1
Hebrew Orphan Asylum	185	13.5	1.1
Horace Mann (Hebrew)	116	13.1	1.2
Horace Mann (Non-Hebrew)	236	13.1	1.2
Fels Institute	49	12.9	1.4
Guidance Study	91	12.8	1.1

These studies indicate rather conclusively that over the past century menarche has been gradually occurring at an earlier age. Reasons for this phenomenon are not so clear. The two most significant factors influencing menarcheal age seem to be heredity and economic conditions. In analyzing studies of this nature it must be noted that difference as to first age of menstruation may reflect the different samples used and different reporting techniques (Horrocks, 1951). In addition, the potential inaccuracy of self-reporting by subjects when giving age from memory must be considered.

Regardless of the age at which it occurs, the onset of menstruation signals a change in bodily growth and functions. Menarche has a definite effect upon body stature as brought out in studies by Franz Boas (1932, 1933, 1935). Boas, credited with originating the term "physiological age," investigated 352 Hebrew and non-Hebrew girls in the Horace Mann School in New York City. As reported earlier in Table 2, he found the mean age at first menstruation to be 13.1 and the standard deviation to be 1.2. He next found the mean age in which maximal growth occurred to be 12.1 years. This led him to the conclusion that mean age of maximal rate of stature growth precedes mean date of first menstruation by one year. Boynton (1936), in analyzing anthropometric measurements on 1,241 Iowa City girls ranging from 1.6 to 18 years old, concluded that most growth occurs during the pre-pubertal period, and that with the advent of menstruation accelerated growth is checked. (Frank Shuttleworth (1937) compared ten girls whose onset of menstruation occurred between 10.7 and 11.3 years and ten whose onset of menstruation occurred between 14.5 and 15.2 years. The girls reaching menarche at the younger age were on the average taller during the period from 8.6 to 12 years of age than the girls who were later-maturing. The girls in the late menarcheal group, however, continued to grow and thereby ended up taller than the early-maturing group. In a study in 1939 Shuttleworth found that early-maturing girls who menstruate prior to age 12.6 are

from 1 1/2 to 15 1/2 per cent larger in linear measurements than are late-maturing girls who menstruate after age 13.5.) His theory was that patterns of physical growth shown by different dimensions and different groups from conception to maturity are the result of a progressive balancing of endocrine factors, of the timing of endocrine stimulation, and of factors associated with sex. Simmons and Greulich (1943) studied 200 girls at the Brush Foundation, as noted in Table 2. They found that the girl with early menstruation has a short, intensive, pre-menstrual spurt in height; the girl with late menstruation has a long period of regular growth.)) Greulich (1944) explained this phenomenon by stating that in those in whom puberty occurs very early the gonadal hormones are produced abnormally early in quantities sufficient to suppress growth before normal adult stature has been attained.)

(In summarizing the preceding studies regarding menarche and physical growth, it appears that the earlier the menstruation, the more intense is the period of maximal growth. This period lasts for almost the entire year preceding menstruation. Consequently, girls at first menstruation are generally taller than girls of the same age who have not yet experienced menarche. Following the period of maximal growth, which almost climaxes with menarche, there is a rapid decrease until growth ceases within one to three years. The earlier the onset of menstruation, the

more rapidly the growth process comes to an end. Therefore, girls who menstruate while very young tend to be shorter adults than those who begin menstruation very late.)

Menarche has an effect on body functions as emphasized in the California Adolescent Growth Study (Shock, 1944). These findings indicate that the steady rise in systolic blood pressure ceases near menarche and levels off to a uniform level. Pulse rate shows maximum rate during the year prior to menarche and then declines. There is a sudden fall in basal metabolism and a cessation of growth increase in respiratory volume following the onset of the first menses. Shock concluded that with the beginning of menstruation comes a stabilization of physiological functions rapidly approaching adult levels.

(Since body growth and functions seem directly affected by the advent of menstruation, menarcheal age has often been used as an index of physiological age in girls.) Although recognizing menarche as but a single physiological event, researchers have generally agreed with the feeling expressed by Greulich (1938).

Although menarche itself cannot be considered an entirely satisfactory criterion of maturity, it is readily obtainable and because of its connection with endocrine factors is related to general physiological maturation (p. 2).

Fluhmann (1957) stated that since the menarche is such a definite event, it is now considered to represent a more specific standard for comparison of age groups than

chronological age. Tanner (1961) agreed that the age at menarche is used in studies of growth because it is a landmark with most girls and also because valid means and standard deviations can be obtained by simply asking all the girls in a certain group to say whether or not they have yet menstruated.

Research Relating Menarche to Personality

A review of the major studies establishes the belief that a relationship does indeed exist between physiological growth and psychological characteristics. Many of these studies have used various criteria to establish physiological level, but only those using menarche as a criterion of physiological age seem appropriate to be discussed here.

One of the earlier studies was conducted by Leal (1929), who investigated how children of each physiological stage mature year after year. Her study involved 4,000 children in New Britain, Connecticut. Physiological maturity was determined by physicians, who measured a number of physiological characteristics, including onset of menstruation. (She concluded that personality traits seem to have a definite relationship to level of maturity. Specifically, gregariousness proved to be associated with greater maturity.)

Stone and Barker (1934, 1937, 1939) investigated the relationship between age at onset of menstruation and responses to items on the Bernreuter Personality Inventory.

Two groups of college freshmen, 336 at San Jose State College and 258 at Stanford University in California, composed the sample. No attempt was made to check on the validity of the reported ages at menarche. Coefficients of correlation between menarcheal age and personality test scores did not indicate a significant relationship between age at first menstruation and rating for neurotic tendency, self-sufficiency, introversion, or dominance. Further selectivity was made by examining two groups of 51 subjects at each extreme of the menarcheal age curve. The groups were not significantly different in responses to the personality instrument. The authors concluded, however, that their findings should not be construed as indicating absence of important relationships in earlier stages of adolescence when physical changes were rapidly occurring.

In the second study by Stone and Barker (1937) an investigation was made of 770 girls whose ages ranged from twelve to fifteen. The subjects were separated into two groups, 175 pre-menarcheal and 175 post-menarcheal. The main study involved responses to three personality tests. (The results showed more mature responses from the post-menarcheal group.)

In the 1939 study by Stone and Barker investigation was made of attitudes and interests of 1,000 junior high school girls who were divided into pre-menarcheal and post-menarcheal groups. These subjects were placed in three socio-economic classifications (high, intermediate, and low)

on the basis of the occupation of the supporting member of the family and certain aspects of the home. Results revealed that pre-menarcheal and post-menarcheal girls of the same chronological age and socio-economic status responded differently to items on the attitude-interest questionnaire. Post-menarcheal girls appeared to possess the more mature attitudes and interests.

Reymert (1940) selected a group of 138 girls for study in order to relate menarcheal age, behavior disorders, and intelligence. He found no significant correlation between age at menarche and intelligence. (Also he discovered no significant relationship between age at menarche and incidence of behavior problems.)

Frank (1953) explored personality and emotional reactions of girls as they develop and mature from the time just before puberty, at puberty, and in later adolescence. The study focused on psychological maturation of the adolescent girl, her feelings about herself, and relationships with others. The subjects were 300 girls divided into three stages of development (pre-pubertal, pubertal, adolescent). Evidence was obtained from responses made to a number of projective techniques, including the Rorschach test, Thematic Apperception Test (TAT), Draw a Figure, Horn-Hellersberg Test, and Graphological Interpretation. The investigator found the TAT stories of pre-pubertal and pubertal girls to be centered in the home and parent-child relations. From

this study Frank decided that psychological development is continuous and gradual, and that no sudden change occurs from pre-puberty to post-puberty. He concluded that:

The onset of menstruation is psychologically meaningful, not so much in an absolute biological sense, but only as it is related to cultural traditions, specific family settings, and the total functioning of the personality (p. 86).

Davidson and Gottlieb (1955) investigated the relationship between sexual maturation and emotional maturity. They matched 26 girls according to social class, chronological age, grade in school, and kind of school. The subjects were divided into two groups, pre-menarcheal and post-menarcheal, and were administered the Rorschach test. (Results indicated that girls who had begun menstruation had achieved a better self-concept. The means of all scores were in the direction of greater maturity for the post-menarcheal group, particularly in the degree of awareness of interpersonal relationships.)

Faust (1960) studied 731 girls in grades six through nine for the purpose of determining whether developmental maturity is a determinant in prestige and other traits during adolescence. She administered Tryon's Guess Who Test to girls classified as pre-pubertal, pubertal, post-pubertal, or late adolescent. The results showed that at every grade the more mature received progressively higher mean scores on the item "grownup" than did those less mature. In the eighth and ninth grades when the average girl is post-pubertal the

desirable traits were most frequently ascribed to girls in the late adolescence group (four to six years beyond menarche). The researcher suggested that a person's level of maturity does contribute significantly to the reputation which a girl has in her social group. (Before junior high school, the * early-maturing girl's precociousness is detrimental to her social status.) These data seemed to support the hypothesis by Jones and Mussen (1958) that early and late development may mean different things at different times during adolescence.

(According to Staton (1963), girls who mature early tend to be self-conscious, yet with exhibitionistic urges, isolated from interests of their age mates, and in need of adult supervision of their heterosexual activities. They seem more socially advanced than other girls even after all reach maturity.) (He characterizes late-maturing girls as being lonely and envious due to being left out of social activities, self-conscious about immaturity, overprotected by parents, and in need of success experiences.)

In conclusion, the research in this field appears to support the assumption that both early-maturing and late-maturing girls may suffer from discrepancies between their developmental status and that of those in their peer group.

Instruments Used in Study

As stated in Chapter I, the instruments utilized in this study were the Minnesota Counseling Inventory (Berdie

and Layton, 1957), the Mooney Problem Check List, high school form (Mooney and Gordon, 1950), and the Psychological Maturity Scale designed by the writer from research by Ruth Strang (1953). A sample of the Psychological Maturity Scale can be found in Appendix C. In this section, evidence regarding validity and reliability for these instruments will be discussed.

The Minnesota Counseling Inventory (MCI) was selected for use in this study because of its extensive standardization procedure, its relative inoffensiveness to students in a small high school, and for its coverage of a number of personality characteristics held important in evaluating emotional maturity. According to the Manual (Berdie and Layton, 1957), this inventory attempts to reveal personality characteristics which differentiate students. The MCI is based upon two previously developed personality inventories, the Minnesota Personality Scale and the Minnesota Multiphasic Personality Inventory. The MCI contains 355 items and is untimed. Scores are obtained on eight scales which are described in the Manual (Berdie and Layton, 1957) in this manner:

1. Validity Score (V)

This scale refers to the degree of defensiveness of the student. High scores are received by those choosing socially acceptable responses.

2. Family Relationships (FR)

This category refers to the relationships with parents, and with brothers and sisters. Low

scores indicate friendly and healthy relationships. High scores reflect conflicts or maladjustments.

3. Social Relationships (SR)

This area refers to the nature of a student's relationships. Low scores are associated with gregariousness and social maturity. High scores suggest social ineptness.

4. Emotional Stability (ES)

This category describes the emotional status characterizing an individual. Low scores reflect emotional stability, and high scores indicate persons who appear to be emotionally unstable.

5. Conformity (C)

This scale refers to the adjustment which is made in situations demanding conforming or responsible behavior. Students with low scores are usually reliable and responsible. Those with high scores tend toward irresponsibility, impulsiveness, and rebelliousness.

6. Adjustment to Reality (R)

The way in which a student deals with reality is examined in this scale. Those with low scores make friends and communicate with others easily. Students with high scores often withdraw from establishing relationships with others.

7. Mood (M)

This scale refers to a person's emotional state. Low scores indicate enthusiasm, optimism, and self-confidence. High scores reflect a feeling of discouragement and poor morale.

8. Leadership (L)

Skills in leadership and in working well with others are emphasized in this category. Low scores are characteristic of outstanding leadership skills. High scores reflect lack of leadership qualities.

Validity for the MCI is described in the Manual (Berdie and Layton, 1957). The authors caution that validity is not available for various combinations of MCI scores. For this reason they suggest that single scores be used to describe individuals. Therefore, scale scores have been treated as separate entities in the present study. Evidence concerning the validity of scores on the diagnostic scales was obtained through these means. Teachers supplied the names of students who conformed most closely to descriptions of behavior for a high or low rating on one of the psychological variables included in the MCI. In addition, school nurses, counselors, and principals identified student leaders, delinquents, or those having serious problems. Approximately 24,000 high school students formed the standardization sample. The evidence seems to indicate that the scales of the MCI have reasonably acceptable validity. Shaffer (Buros, 1959) denotes, in regard to the reliability data of the MCI, that both split-half and retest reliabilities are in the main satisfactory.

It seemed necessary in this study to use a second instrument which might reveal differences in problems expressed by adolescent girls who differed in maturity level. For this reason the Mooney Problem Check List (MPCL), H form (Mooney and Gordon, 1950) was selected for use in identifying personal problems as perceived by the subjects. The MPCL includes 330 items arranged in eleven categories,

and subjects mark those items of most concern to them. The eleven areas are listed below:

1. Health and Physical Development (HPD)
2. Finances, Living Conditions, and Employment (FLE)
3. Social and Recreational Activities (SRA)
4. Courtship, Sex, and Marriage (CSM)
5. Social-Psychological Relations (SPR)
6. Personal-Psychological Relations (PPR)
7. Morals and Religion (MR)
8. Home and Family (HF)
9. The Future: Vocational and Educational (FVE)
10. Adjustment to School Work (ASW)
11. Curriculum and Teaching Procedure (CTP)

Although no single index of the validity of the MPCL has been derived, the usefulness of this instrument has been verified through numerous research studies. Jones (Buros, 1953) advocates use of the MPCL as a means of studying problem clusters, trends, and differences among groups. In regard to reliability, the Manual (Mooney and Gordon, 1950) explains that although the MPCL is designed to reflect changing situations and experiences of the individual, there is sufficient stability to justify use for survey purposes. One study by the senior author reports a correlation coefficient of .93 obtained from the test-retest method.

The third instrument used in this study was the Psychological Maturity Scale (Appendix C), adapted from research undertaken by Strang (1953). As a result of her study of hundreds of adolescents, she outlined the characteristics of a mature person as:

1. Ability to see the other person's point of view
2. Objectivity toward one's self
3. Ability to select suitable, worthwhile, long-term goals

4. Ability to make adjustments to situations
5. Ability to cope with unexpected stresses or disappointments
6. Ability to give as well as receive affection
7. Ability to base opinions on sound reasoning
8. Ability to appraise realistically own limitations

With the preceding characteristics serving as a definition of psychological maturity, a five-point scale was designed as follows:

- | | |
|--------------------|----------------------|
| 1. Very Immature | - extremely childish |
| 2. Immature | - childish |
| 3. Somewhat Mature | - somewhat adultlike |
| 4. Mature | - adultlike |
| 5. Very Mature | - very adultlike |

Using the Psychological Maturity Scale (PMS), thirty-five teachers rated the subjects on the overall characteristic of maturity. Each subject was rated by three teachers. In this scale psychological maturity is defined not merely as a single personality component but the total integration of personality factors observed in the individual. Stone and Church (1957) define maturity as an increasing self-integration and more effective functioning as a person. Thus, the use of the PMS in this study permitted an investigation of whether or not this type of functioning could be accurately judged by qualified raters.

Summary

Although the literature cited does seem to establish the strong probability that sexual maturation is correlated with emotional maturity, these studies only serve to strengthen the long-held belief that there are wide individual

differences in rates of maturation. The research does not present clear-cut answers regarding the effect of menarche upon personality. However, several studies have revealed that post-menarcheal girls display greater maturity than pre-menarcheal girls. Evidence can be found in the literature that early- and late-maturing girls may possess psychological differences, and that being different from one's peers may pose a potential hazard for adequate adjustment. Also, there appears to be a definite need in this area of investigation for more precise ways of selecting samples and for the development of personality instruments with high validity.

CHAPTER III

THE DESIGN OF THE STUDY

Introduction

Since the purpose of this study was to compare physiological maturity with present psychological functioning, the research design required measures of these two factors. As stated previously, the age at menarche was selected as the determinant of physiological level, and the three instruments described in Chapter II were utilized as indications of psychological level. In order to make the comparison called for in the research, a sample was selected and studied.

Selection and Description of Sample

The sample used was composed of 225 girls selected from the total female population of a junior-senior high school in central Florida. The school is located in a largely middle-class community of approximately 15,000 persons. So that the mean menarcheal age could be determined, selection of the sample began with a routine health survey of all of the 513 girls enrolled in the school (Appendix A). The survey was undertaken with the approval and cooperation of the County Health Department, and information obtained was later utilized by the school nurse to assist students with health problems. Used in this research was information from

one question included on the survey form which asked the girls to state age, month, and year of first menstruation. When the data were compiled, it was found that 31 girls had to be eliminated from the group since 17 had not yet experienced their first menstruation, and 14 could not recall age or date at menarche. Table 3 shows the compilation of menarcheal ages for the 482 girls in the population under consideration. It can be observed that the mean menarcheal age for this group was 12.8, and the standard deviation was 1.03. As explained previously, ages are expressed throughout this thesis by a decimal separating years and months.

TABLE 3
Menarcheal Ages of School Population

Menarcheal Age	Number of Girls
16.0 - 16.5	2
15.6 - 15.11	3
15.0 - 15.5	6
14.6 - 14.11	15
14.0 - 14.5	24
13.6 - 13.11	54
13.0 - 13.5	96
12.6 - 12.11	110
12.0 - 12.5	91
11.6 - 11.11	35
11.0 - 11.5	26
10.6 - 10.11	15
10.0 - 10.5	2
9.6 - 9.11	2
9.0 - 9.5	<u>1</u>
Mean = 12.8	N = 482
SD = 1.03	

Following the establishment of a population mean of 12.8 for menarcheal age, arbitrary boundaries for early and late maturity were designated, and subjects were classified into one of the three maturity groups. Eighty-one of the girls were placed in the early-maturing group since their onset of menstruation was reportedly before the age of 12.0. Three hundred and fifty-one who reported onset of menstruation between the ages of 12.0 and 13.11 were classified as average-maturing. Fifty were placed in the late-maturing group as their onset of menstruation was reported to be after the age of 13.11. In a move to equalize the groups a select sample of the average-maturers was obtained by arranging their names in alphabetic order and choosing by random 100 subjects to represent this category. All girls categorized as early- or late-maturing were retained in the sample to be studied.

Subjects were asked to have their mothers or other close family members complete a verification form concerning the girls' age at menarche (Appendix B). This procedure eliminated 6 girls from the average-maturing group who were unable to provide verification, thereby reducing the group to 94. All girls used in the study did present verification of menarcheal age from some member of the family which coincided with the age which the girl had previously reported at school.

Table 4 gives the menarcheal ages for the subjects selected for this study. It can be seen that the mean

menarcheal age for the 81 early-maturers is 11.3, for the 94 average-maturers, 13.0, and for the 50 late-maturers, 14.7. The mean menarcheal age for the 225 girls in the sample is 12.7.

TABLE 4
Menarcheal Ages of 225 Girls

Menarcheal Age Ranges	Early - Maturers	Average- Maturers	Late- Maturers	Total Sample
16.0 - 16.5			2	2
15.6 - 15.11			3	3
15.0 - 15.5			6	6
14.6 - 14.11			15	15
14.0 - 14.5			24	24
13.6 - 13.11		25		25
13.0 - 13.5		27		27
12.6 - 12.11		21		21
12.0 - 12.5		21		21
11.6 - 11.11	35			35
11.0 - 11.5	26			26
10.6 - 10.11	15			15
10.0 - 10.5	2			2
9.6 - 9.11	2			2
9.0 - 9.5	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>
	N = 81	N = 94	N = 50	N = 225
	M = 11.3	M = 13.0	M = 14.7	M = 12.7
	SD = 0.53	SD = 0.55	SD = 0.55	SD = 1.4

Further description of the sample is given in Table 5. In this table the chronological ages for the 225 girls are shown; the reference point for these ages was spring 1964 at the time the study was made. The chronological age means for the three classification groups are 15.6, 15.8, and 16.7,

respectively. The chronological age mean for the total sample is 15.9.

TABLE 5
Chronological Ages of 225 Girls

Chronological Age Ranges	Early-Maturers	Average-Maturers	Late-Maturers	Total Sample
19.6 - 19.11	0	0	1	1
19.0 - 19.5	1	0	0	1
18.6 - 18.11	2	1	2	5
18.0 - 18.5	1	5	6	12
17.6 - 17.11	4	11	6	21
17.0 - 17.5	11	11	7	29
16.6 - 16.11	8	9	8	25
16.0 - 16.5	4	9	6	19
15.6 - 15.11	10	7	5	22
15.0 - 15.5	6	6	4	16
14.6 - 14.11	11	10	4	25
14.0 - 14.5	9	12	1	22
13.6 - 13.11	12	13	0	25
13.0 - 13.5	1	0	0	1
12.6 - 12.11	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>
	N = 81	N = 94	N = 50	N = 225
	M = 15.6	M = 15.8	M = 16.7	M = 15.9
	SD = 1.5	SD = 1.5	SD = 1.2	SD = 1.5

Table 6 shows the distribution of school grade levels for the 225 subjects subdivided into three maturity groups. It will be noted that the totals are somewhat evenly distributed across the five grades in the junior-senior high school. The early-maturing group shows a mean grade placement of 9-6; the average-maturing group shows a mean of 9-7; and the late-maturing group shows a mean of 10-2. The mean grade placement for the total sample is shown as 9-8.

TABLE 6
Grade Placement of 225 Girls

Grade Placement	Early-Maturers	Average-Maturers	Late-Maturers	Total Sample
Grade 12	9	15	10	34
Grade 11	15	20	13	48
Grade 10	15	14	14	43
Grade 9	17	14	5	36
Grade 8	<u>25</u>	<u>31</u>	<u>8</u>	<u>64</u>
	N = 81	N = 94	N = 50	N = 225
	M = 9-6 SD = 1-4	M = 9-7 SD = 1-5	M = 10-2 SD = 1-1	M = 9-8 SD = 1-4

Further description of the sample can be observed in Table 7 which shows the number of years since menarche for the girls in each of the three classification groups and for the total sample. As would be expected, the early-maturing group has the most years post-menarche with a mean of 4.4 years. The average-maturing group has a mean post-menarche of 2.9 years, and the late-maturing group shows a mean post-menarche of 2.5 years. For the total sample, the mean post-menarche is 3.6 years.

A useful purpose is found in describing the sample in another way. The similarities and dissimilarities of the three maturity groups may be observed by examining the percent distributions in each category relating to menarcheal

age, chronological age, grade placement, and years post-menarche. Table 8 gives these per cents and includes the means and standard deviations for each variable which have been noted in previous tables.

TABLE 7
Years Post-Menarche for 225 Girls

Years Post-Menarche	Early-Maturers	Average-Maturers	Late-Maturers	Total Sample
9	1	0	0	1
8 1/2	0	0	0	0
8	2	0	0	2
7 1/2	1	0	0	1
7	5	0	0	5
6 1/2	5	0	0	5
6	9	2	0	11
5 1/2	5	3	1	9
5	9	8	1	18
4 1/2	9	10	2	21
4	6	15	3	24
3 1/2	3	4	3	10
3	13	8	10	31
2 1/2	8	8	6	22
2	5	16	7	28
1 1/2	0	10	4	14
1	0	5	6	11
6 mos. or less	0	5	7	12
	N = 81	N = 94	N = 50	N = 225
	M = 4.4	M = 2.9	M = 2.5	M = 3.6
	SD = 1.7	SD = 1.5	SD = 1.3	SD = 1.8

Procedures

In February 1964 all students in the selected high school completed a health questionnaire as part of a regular health program. From this information the menarcheal ages

TABLE 8

Percent Distributions for Menarcheal Age, Chronological Age,
Grade Placement, and Years Post-Menarche

<u>Menarcheal Age</u>												
Group	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	Total	Mean	SD	
Early-Maturers	3.7%	21.0%	75.3%						100%	11.3	.53	
Average-Maturers			44.7%	55.3%					100	13.0	.55	
Late-Maturers					78.0%	18.0%	4.0%		100	14.7	.55	
<u>Chronological Age</u>												
Group	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	Total	Mean	SD	
Early-Maturers	1.2%	16.0%	24.7%	19.8%	14.8%	18.5%	3.7%	1.3%	100%	15.6	1.5	
Average-Maturers	0.0	13.8	23.5	13.9	19.0	23.4	6.4	0.0	100	15.8	1.5	
Late-Maturers	0.0	0.0	10.0	18.0	28.0	26.0	16.0	2.0	100	16.7	1.2	
<u>Grade Placement</u>												
Group	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>							
Early-Maturers	30.9%	21.0%	18.5%	18.5%	11.1%							
Average-Maturers	33.0	14.9	14.9	21.3	15.9							
Late-Maturers	16.0	10.0	28.0	26.0	20.0							
<u>Years Post-Menarche</u>												
Group	<u>0-2</u>	<u>2-4</u>	<u>4-6</u>	<u>6-8</u>	<u>8-10</u>							
Early-Maturers	0.0%	35.8%	24.7%	3.7%								
Average-Maturers	21.3	38.3	2.1	0.0								
Late-Maturers	34.0	52.0	14.0	0.0								
Early-Maturers--N = 81	Average-Maturers--N = 94					Late-Maturers--N = 50						

for the female population were obtained. After the selection of 225 girls to compose the sample, written verification of menarcheal age was obtained from mothers or other close relatives of the subjects involved.

In late April 1964 each of the girls was asked to participate in this study of growth and development. Upon consent, they were administered the MCI and the MPCL, described in Chapter II. To encourage a spirit of candidness, individual folders were used for confidentiality in distribution and collection of all materials. The examiner pledged that personal scores would remain known only to the researcher and that they would not become part of the school records. To insure a feeling of security and anonymity, the only identification appearing on the testing materials was an assigned research number. The testing was completed within a two-hour period during the school day under standardized testing conditions.

In June 1964 instructors who had taught the girls for one year or more were asked to rate each one on the PMS, as described in Chapter II. An attempt was made to include for each girl one teacher who had observed her behavior in a situation other than the classroom, such as in physical education or in music classes. The thirty-five teachers who participated in the project were unaware of the maturity groups to which the girls had previously been assigned. Ratings from one to five (Very Immature to Very Mature) were

assigned for each subject. Three ratings were obtained for each girl, and a total measure for psychological maturity was derived, the maximum score being fifteen.

Treatment of Data

As stated in Chapter I, this research study was based on the assumption that if developmental age, as signified in girls by menarche, were recognized as a contributor to behavior, the adolescent girl would derive greater self-understanding, and parents and counselors could render greater assistance during the maturation process. With this assumption in mind, the hypotheses as stated in Chapter I were tested.

Comparisons were made of mean scores for the twenty-one personality variables and for the four time-related variables for each of the maturity groups. Coefficients of correlation were computed on the personality variables in interaction with chronological age, menarcheal age, grade placement, and post-menarche. Analysis of variance and covariance was used to test the significance of the differences found among the three maturity groups. A chi square analysis was made to determine the degree of association which existed between menarcheal age and teacher ratings of psychological maturity.

CHAPTER IV

ANALYSIS OF DATA

Introduction

This research was undertaken to ascertain how psychological and physiological maturity may be related. In Chapter I general questions considered were listed as follows:

1. Are there measurable personality differences among adolescent girls whose menarcheal age classifies them as early-, average-, or late-maturing?
2. Do early- and late-maturing girls differ significantly from average-maturing girls in personal problems expressed during adolescence?
3. Are adolescent girls whose physiological maturity is advanced or retarded perceived by their high school teachers to be emotionally mature or immature?

From these general questions specific hypotheses were formulated for testing.

- I. Personality problems, as revealed by the Minnesota Counseling Inventory, will be significantly greater for the early- and the late-maturers, in contrast to the average-maturers.
- II. Personal problems, as expressed on the Mooney Problem Check List, will be significantly greater for the early- and the late-maturers than for the average-maturers.

- III. High school teachers will give higher ratings on psychological maturity to those adolescent girls who are older in terms of physiological age.

In Chapter III it was explained that the 225 students participating in this study were divided into three groups according to menarcheal age. The groups were classified as early-, average-, and late-maturing. Analysis of data given in this chapter will be based on comparisons among these three rate-of-maturing groups.

Means and Variances

In order to test the hypotheses stated above, the original data were statistically analyzed using the 709 Computer at the University of Florida Computing Center in Gainesville. Data programmed for the computer consisted of standard scores for eight subtests of the MCI raw scores for eleven subsections and a total score for the MPCL, and a total rating on the PMS. These twenty-one scores will be referred to as personality variables in this study. In addition to the computing service the writer used a system of hand sort cards for computation of many of the data.

A comparison of the three maturity groups on the MCI is shown in Table 9. For MCI published norms, the mean raw score for each scale was equated to 50 with a standard deviation of 10. Table 9 shows the means and standard deviations for each of the three groups in this sample. High scores on the MCI suggest conflict and maladjustment.

TABLE 9
Comparison of Three Maturity Groups
on the Minnesota Counseling Inventory

Scale	Early- Maturers N = 81		Average- Maturers N = 94		Late- Maturers N = 50		Total Sample N = 225	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Validity	48.1	9.3	45.5	7.4	45.6	8.6	46.5	10.9
Family Relationships	52.1	10.5	52.5	11.6	53.5	11.0	52.6	11.1
Social Relationships	51.2	10.2	49.1	9.3	53.8	10.2	50.9	10.1
Emotional Stability	55.6	11.2	52.7	11.4	57.2	10.8	54.7	11.4
Conformity	54.7	10.1	53.5	11.7	56.1	11.5	54.5	11.2
Adjustment to Reality	56.2	11.7	54.1	12.1	57.0	11.6	55.5	12.0
Mood	53.4	11.2	49.5	10.2	53.0	11.1	51.8	11.1
Leadership	51.8	9.9	50.3	9.8	54.4	10.1	51.8	10.0

This table indicates that the early-maturers and the late-maturers are slightly less emotionally stable and more poorly adjusted to reality than the average-maturers. The late-maturing group also seems less conforming than the other two maturity groups. It should be emphasized, however, that these results reveal slight group tendencies toward maladjustment, most notably on the Adjustment to Reality scale.

A comparison of the three maturity groups on the Mooney Problem Check List (MPCL) can be seen in Table 10. Scores for the MPCL have been reported in terms of total items checked. High scores indicate expressed worry and concern. In Table 10 means and standard deviations have been shown for the three maturity groups on each section of the MPCL. Upon observation of these data no strong differentiation between the three maturity groups is revealed by the MPCL. The late-maturers seemed to be more concerned with adjustment to school work than either of the other two groups. All three groups appeared to be more concerned with expressed problems in social-psychological relations, personal-psychological relations, and adjustment to school work than any other sections. The early-maturers seemed to show greater concern for courtship, sex, and marriage than the average- or late-maturers. This would be as expected. The total scores given on the MPCL show that the early- and late-maturing groups have expressed a slightly greater number of problems than has the average-maturing group. It

TABLE 10

Comparison of Three Maturity Groups
on the Mooney Problem Check List

Section	Early- Maturers N = 81		Average- Maturers N = 94		Late- Maturers N = 50		Total Sample N = 225	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Health, Phy. Dev.	4.8	3.0	3.9	3.3	3.5	2.6	4.1	3.2
Finances, Living Cond., Employment	4.3	3.4	4.2	3.9	3.9	3.3	4.2	3.6
Social-Rec. Act.	5.1	3.5	4.2	4.1	4.3	3.7	4.5	3.9
Courtship, Sex, Marriage	6.1	4.8	5.5	4.4	4.9	3.8	5.6	4.5
Social-Psy. Rel.	6.6	4.7	6.1	5.4	6.8	4.7	6.4	5.1
Pers.-Psy. Rel.	6.7	4.7	5.7	5.0	6.7	4.1	6.3	4.8
Morals, Religion	5.7	4.0	4.4	3.8	4.8	3.5	5.0	3.9
Home & Family	4.5	4.0	4.3	4.4	4.6	4.9	4.4	4.4
Future: Voc. & Ed.	3.2	3.0	3.8	3.8	3.0	2.9	3.4	3.4
Adj. to School	6.6	4.5	6.2	4.8	8.2	5.0	6.8	4.8
Curriculum, Teach. Proced.	4.9	4.1	5.3	4.3	4.7	3.2	5.0	4.0
Total Score	58.7	32.3	53.6	38.1	55.6	30.6	56.9	34.5

should be noted that the foregoing inferences have been based on observed differences rather than real differences.

Table 11 shows the comparison of the three maturity groups on the PMS. Each girl in the study was given a maturity rating of from one (Very Immature) to five (Very Mature) by three teachers. The maximum score possible for each subject was therefore fifteen. Means and standard deviations are shown in Table 11 for each of the maturity groups. From observation this table reveals that teachers gave early- and average-maturing girls approximately the same maturity rating. However, teachers perceived the late-maturing group as slightly less mature than the other two groups. In regard to the late-maturers, it will be remembered that their mean chronological age was approximately one year older than that for the early- or average-maturers.

TABLE 11
Comparison of Three Maturity Groups on
the Psychological Maturity Scale

Early- Maturers N = 81		Average- Maturers N = 94		Late- Maturers N = 50		Total Sample N = 225	
<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
9.5	2.2	9.3	2.2	8.7	2.4	9.2	2.3

Possible maximum score on PMS = 15

In addition to the comparisons made of the personality factors, averages and standard deviations, as reported in Chapter III, were computed for the time-related variables. Table 12 shows a comparison summary of the three maturity groups in regard to menarcheal age, chronological age, grade placement, and post-menarche. This table reveals differences in mean menarcheal age for the three maturity groups. In regard to chronological age, the late-maturing girls were on the average approximately one year older than the other girls in the study. In terms of grade placement, the late-maturing group was on the average one grade above the average

TABLE 12
Comparison of Three Maturity Groups
On the Time-Related Variables

Variables	Early-Maturers N = 81		Average-Maturers N = 94		Late-Maturers N = 50		Total Sample N = 225	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
Menarcheal Age	11.3	0.53	13.0	0.55	14.7	0.55	12.7	1.4
Chronological Age	15.6	1.5	15.8	1.5	16.7	1.2	15.9	1.5
Grade Placement	9-6	1-4	9-7	1-5	10-2	1-1	9-8	1-4
Post-Menarche	4.4	1.7	2.9	1.5	2.5	1.3	3.6	1.8

MA expressed in terms of age in years and months
 CA expressed in terms of age in years and months
 GP expressed in terms of grade year and month
 PM expressed in terms of time in years and months

of the other two groups. The early-maturing girls naturally showed considerably more time elapsed since menarche than for the other girls.

Correlations Among Personality Variables and Time-Related Variables

To determine the interrelationships between the personality variables and the time-related variables, the Pearson product moment correlation coefficient was utilized. Each of the personality variables was correlated with menarcheal age (MA), chronological age (CA), grade placement (GP), and months post-menarche (PM). Table 13 shows these correlation coefficients. As mentioned previously, high scores on both the MCI and the MPCL indicate personality problems. Low scores on the PMS reflect lack of maturity as judged by teachers.

Hypothesis I proposed that more personality difficulties would be shown by the early- and the late-maturing girls than by the average-maturing girls. Conclusions concerning this can be drawn from a comparison of the means and standard deviations as shown in Tables 9, 10, 11 and from the correlation coefficients shown in Table 13. The hypothesis was substantiated only to a very small degree on a few of the variables. In Table 13 the r of $-.16$ for MA and the r of $.14$ for PM appear to indicate slightly less emotional stability for those with more months beyond menarche. This does not necessarily confirm the hypothesis

TABLE 13
Correlation of Personality Variables
with Time-Related Variables

Personality Variables	Time-Related Variables			
	MA	CA	GP	PM
<u>Minnesota Counseling Inv.</u>				
Validity (Defensiveness)	-.16*	.04	.01	.16*
Family Relationships	.06	.07	.00	.00
Social Relationships	.04	.07	-.02	-.01
Emotional Stability	-.02	.15*	.02	.14*
Conformity	.02	.08	-.04	.05
Reality	-.00	.02	-.10	.02
Mood	-.06	.00	-.08	.03
Leadership	.05	.09	-.02	.01
<u>Mooney Problem Check List</u>				
Health, Phy. Development	-.17*	.06	-.01	.18**
Finances, Liv. Con., Employ.	-.03	.03	-.12	.03
Social, Recreational Act.	-.08	.02	-.10	.06
Courtship, Sex, Marriage	-.10	.04	-.09	.11
Social-Psy. Relations	-.01	.04	-.03	.03
Personal-Psy. Relations	-.02	.08	.02	.07
Morals & Religion	-.08	-.01	-.06	.05
Home & Family	.02	.05	.00	.02
Future: Voc. & Ed.	-.03	.15*	.07	.13*
Adjustment to School Work	.07	.13	-.01	.03
Curriculum & Teach. Proced.	-.03	-.07	-.07	-.04
Total	-.05	.06	-.04	.07
Psychological Maturity Scale	-.08	.32***	.48***	.36***

*Significant at the .05 level

**Significant at the .01 level

***Significant at the .001 level

since this variable includes girls of wide menarcheal age range. However, a trend toward a negative correlation can be observed for menarcheal age in Table 13, and this would suggest more problems for the early-maturing group.

Hypothesis II purported that the extreme groups (early- and late-maturing) would express more personal problems. In this regard some conclusions can be drawn from further inspection of Table 13. The girls with more months beyond menarche (PM) reported more problems in the area of Health and Physical Development. Also, the girls younger in terms of menarcheal age expressed more concern in this area. This would seem to be an expected finding for these girls who have developed physically at a rate faster than many of their age mates.

Hypothesis III stated that higher ratings of psychological maturity would be expected for girls older in terms of physiological age. One most significant coefficient of correlation ($r = .36$) to be shown in Table 13 upholds this premise. Teacher perceptions are correlated positively beyond the .001 level of significance, demonstrating that ratings of more maturity tend to be given to girls more months beyond menarche. This result indicates that the teachers are attributing a higher degree of maturity to those girls in the early-maturing group than to those in the other two groups.

In addition to the data relating to specifically stated hypotheses, Table 13 reveals these results. The Validity score on the MCI, a measure of defensiveness, reveals that the early-maturing girls have responded in a more socially acceptable manner. The subjects older in chronological age show less emotional stability and greater concern over future vocational and educational planning, significant at the .05 level. Finally, significantly higher teacher ratings have been given to those girls older in terms of chronological age ($r = .32$) and higher in grade placement ($r = .48$).

Analysis of Variance and Covariance

In this study the question concerned testing the differences in the three maturity groups on certain personality variables. A further question arose concerning the results if groups were made comparable in regard to chronological age. It will be recalled that the mean chronological age for the early-, average-, and late-maturing groups was 15.6, 15.8, and 16.7, respectively.

The statistical device decided upon was the analysis of variance and covariance. An analysis of variance technique provided for an overall test of the significance of the differences existing between and within the three selected groups. According to McNemar (1962), the analysis of covariance is appropriate for predicting how much of a difference in group means would arise because of differences

in an uncontrolled variable. In this study the covariance adjustment made allowance for the failure to control for the uncontrolled variable of chronological age, which would have reduced the size of the sample. In order to accomplish this analysis, program BMD 03Y, prepared by the University of California at Los Angeles, was utilized for the IBM 709 Computer at the University of Florida Computing Center. Only results showing significant F ratios have been selected for presentation in Table 14. The F ratio represents the mean square of the group means for the linear or quadratic effect on menarcheal age divided by the mean square of the within component. McNemar (1962) stated that when curvature is predicted, the testing of the quadratic component provides a more sensitive statistical test of an effect than is possible by an F ratio based only on between and within differences. Table 14 shows that in five of the twenty-one personality variables differences exist among the menarcheal age groups.

In regard to the personality variables of Social Relationships, Emotional Stability, Mood, Health and Physical Development, and ratings of psychological maturity, differences were found to exist beyond the level of chance. As shown in Table 14, differences at the .01 level of significance were discovered for the factors of moodiness or emotional state, concern over personal health and physical development, and ratings of psychological maturity.

TABLE 14

Variance and Covariance Analysis
of the Difference Between Three Maturity Groups
on Certain Personality Variables

Personality Variables	Source of Variance	d/f	Mean Square	F	Corrected Mean Square	F
Social Relationships	Linear	1	215.9	NS		
	Quadratic	1	536.7	5.42*	450.6	4.54*
	Within	222	99.0		99.4	
Emotional Stability	Linear	1	71.2	NS		
	Quadratic	1	690.2	5.38*	617.1	4.88*
	Within	222	128.3		126.4	
Mood	Linear	1	0.5	NS		
	Quadratic	1	829.2	6.82**	830.5	6.80**
	Within	222	121.6		122.1	
Health, Physiological Development	Linear	1	49.3	4.96*	65.8	6.66**
	Quadratic	1	10.9	NS		
	Within	222	9.9		9.9	
Psychological Maturity Scale	Linear	1	21.3	4.00*	66.8	14.56**
	Quadratic	1	.4	NS		
	Within	222	5.3		4.6	

NS = Not Significant

* = Significant at .05 level

** = Significant at .01 level

Chi Square Test of the
Psychological Maturity Scale

At this point in the analysis, it became obvious that the most significant results in this study involved the teacher ratings on the Psychological Maturity Scale (Appendix C). Thus, further analysis was pursued in this area. As explained previously, three teachers rated each girl on a five-point scale. A median rating was established for each of the subjects and a frequency distribution drawn for each of the three menarcheal age groups. From the original five-point rating scale, a folded three-point scale (Very Mature, Mature, Immature) was derived in order to obtain sufficient expected frequencies for a chi square analysis. The results are shown in Table 15. Cells in the chi square table include

TABLE 15
Ratings on the Psychological Maturity Scale
Arranged for Chi Square Analysis

Median Rating	Early- Maturing Girls		Average- Maturing Girls		Late- Maturing Girls		Total
	<u>O</u>	<u>E</u>	<u>O</u>	<u>E</u>	<u>O</u>	<u>E</u>	
Very Mature	31	24	26	29	11	15	68
Mature	33	38	50	42	20	23	103
Immature	17	19	18	23	19	12	<u>54</u>
Total	81		94		50		225

obtained frequencies and expected frequencies (O/E) for median rankings. Table 15 reveals that the obtained frequency of a Very Mature rating for early-maturers is greater than the expected frequency. It can be further noted that the obtained frequency of an Immature rating for late-maturers is greater than the expected frequency. The above frequencies, being in a 3 by 3 table with four degrees of freedom, yielded a chi square of 11.37, which is significant beyond the .05 level. Thus, as predicted, more of the early-maturing girls have been rated Very Mature than would be expected by chance, but this may be a function of their advanced chronological age ($M = 15.6$). However, more of the late-maturing girls have been rated immature than would be expected by chance, in spite of their advanced chronological age ($M = 16.7$).

Summary

Analysis of data obtained in this study has revealed a general, decidedly low relationship between menarcheal age and certain personality characteristics. There appears to be slightly more maladjustment among the early-maturing girls than for the average-, or late-maturing girls. By the application of analysis of variance and covariance technique, the three menarcheal age groups were found to differ to a statistically significant degree in five personality dimensions.

The most notable finding in the analysis of the data related to teacher perceptions of psychological maturity. Teachers attributed the highest level of maturity to the subjects classified as early-maturing and the lowest level of maturity to those subjects classified as late-maturing.

CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

Personality development is a complex, ongoing process unique for each individual. Gordon Allport (1937) defines personality as:

. . . the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to his environment (p. 85).

A comprehensive study of personality necessarily includes an investigation of the psychological and the physical systems to which Allport refers. Any measurement of the psychological nature of development is complicated by the fact that adolescents today are growing up in a world rapidly changing in its moral standards and in its cultural expectations of youth. Further problems are anticipated for the adolescent whose maturing process may be advanced or retarded when compared with others in his age group.

Restatement of Aims and Procedures

The purpose of this study has been to investigate physiological age and its relationship to various dimensions of personality in the adolescent girl. The investigator sought to discover whether adolescent girls who were

early- or late-maturing in terms of menarcheal age possessed personality characteristics different from those who were maturing physiologically at the expected age.

The research was conducted in a medium-sized Florida secondary school and involved 225 adolescent girls in grades eight through twelve. Subjects were classified as early-, average-, or late-maturers according to their age at onset of menstruation. Two personality instruments, the MCI and the MPCL, were administered to the participants during the spring of 1964. In addition, teacher observations were obtained on a PMS. Specific hypotheses investigated were as follows:

- I. Personality problems, as revealed by the Minnesota Counseling Inventory, will be significantly greater for the early- and the late-maturers, in contrast to the average-maturers.
- II. Personal problems, as reflected by the Mooney Problem Check List, will be significantly greater for the early- and the late-maturers than for the average-maturers.
- III. High school teachers will give higher ratings on psychological maturity to those girls who are older in terms of physiological age.

Statistical tests were applied to determine the relationship between the personality variables and menarcheal age. Due to the range of chronological age and grade levels, consideration was given to the influence of other time-related variables as post-menarche time, chronological age, and grade placement.

Conclusions and Discussion

The results of this study have not appeared to verify with any certainty the aforementioned hypotheses. However, the following conclusions may be drawn from the few trends observed in analysis of the data.

Hypothesis I was substantiated to a small degree. Early- and late-maturing girls showed less emotional stability, adjustment to reality, and conforming behavior than did average-maturing girls. In regard to these characteristics, however, it must be noted that the entire group of 225 girls showed a tendency toward maladjustment. The significant, though small correlation coefficient ($r = .14$) obtained for months past menarche and emotional stability supports this trend. It may be surmised that the girls with more months beyond menarche may be feeling the oncoming pressures of adulthood. Many of them are near the time for decisions regarding choice of an educational pursuit, a vocational goal, and a marriage partner. By test of analysis of variance and covariance, the three maturity groups were found to differ significantly on the personality variables of social relationships, emotional stability, and mood.

Inspection of the tables in Chapter IV revealed that Hypothesis II was not borne out by the data. Early- and late-maturing girls showed only a slightly higher mean total of expressed personal problems than did the average-maturing

girls. The high standard deviations found in connection with these total responses reflected the fact that a small number of girls were responsible for the seemingly high number of problems expressed by each of the three groups. Early-maturers expressed the most concern over social relationships; personal feelings; courtship, sex, and marriage; and adjustment to school work. Average-maturers expressed the most concern over social relationships and adjustment to school work. Late-maturers seemed most concerned with social relationships; personal feelings; and most particularly, adjustment to school work. The high mean number of problems regarding school work expressed by the late-maturers was examined more closely by the writer. Observations point to the fact that many of these girls whose onset of menarche is occurring at age 15 or 16 feel unable to cope with the interests and activities of their age group. Perhaps an absorption with personal inadequacies and of feelings of rejection by peers may account for frustration and lack of success in the classroom.

A significant, but small, negative correlation coefficient ($-.17$) was obtained between menarcheal age and problems expressed on health and physical development. It is not surprising for the early-maturing girls to express this concern. When changes in bodily characteristics, physiological processes, and emotional feelings occur, they elicit puzzled reactions. Girls experiencing these changes

at an early chronological age would be expected to exhibit greater anxiety. Since early-maturers are usually shorter and heavier than others, it is highly probable that as these girls grow older they may continue to be concerned about problems of health and physical development.

Hypothesis III was upheld. Teachers perceived early-maturing girls as possessing more adultlike characteristics, and they perceived late-maturing girls as having more childlike characteristics. The teachers made their judgments regarding psychological maturity without awareness of the menarcheal age of the subjects. The three menarcheal age groups were composed of girls who differed widely in chronological age and grade placement. Nevertheless, when the ratings for psychological maturity were tested by chi square analysis, significantly higher ratings were assigned the early-maturers, and lower ratings were given to the late-maturers than would be expected by chance ($\chi^2=11.37/df=4$). Perhaps this is in part due to the fact that as girls reach menarche, they may begin to see themselves as growing up and therefore begin to assume more mature behavior patterns. Teachers generally rated girls who were chronologically older and higher in grade placement as being more mature. In judging the older girls as more mature, teachers may have been guilty of stereotyping. In their expectation that all girls will adopt more mature characteristics as they advance

in age and grade, they may automatically award the older girls higher ratings in maturity.

Data analyzed in this study did not reveal results of great statistical significance although several of the correlation coefficients did reach a level of significance. The highest correlation coefficient found for the personality instruments was .18, and the highest coefficient of correlation found for the rating scale was .48. However, the three maturity groups did show a tendency to differ on certain aspects of personality. Possibly the most rewarding result was the cross tabulation of teacher judgments with menarcheal age as revealed by the chi square analysis. Apparently, an overall personality pattern of mature behavior may be detected in early-maturing adolescent girls, and immature behavior may be observed in late-maturing adolescent girls. Generally speaking, in this study the three maturity groups appeared to possess more similarity than differentiation on the personality instruments which were utilized.

Implications for Further Study

Further research would undoubtedly yield more conclusive findings if variables such as grade placement and chronological age were rigidly controlled in the selection of subjects, although this might reduce the size of the sample.

Future research might be more fruitful if a different investigative procedure were employed. It is believed that most personality instruments attempt to measure a conglomerate of factors in too short a period of time. Through intensive interviews and case studies, information could be gathered relative to the dynamics of personality which was not revealed by the instruments used here. The success of the teacher ratings used in this research suggest that trained observers may be more sensitive to the multiplicity of dimensions in personality than many standardized instruments. On the other hand the use of menarcheal age could just as well be questioned as a criterion of maturity because it fails to predict personality inventory scores.

Possibilities exist for extension of this research in its present form. Case studies could be made of selected subjects within this group. For instance, it might prove fruitful to study the age at which these early- and late-maturing girls marry and their subsequent marital adjustments. A follow-up on the subjects used in this study could make additional contributions to the question of menarcheal age and its relationship to personality development.

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APPENDICES

APPENDIX A

Form for Girls

HIGH SCHOOL HEALTH SURVEY

February 1964

Name _____ Grade _____ Age _____
(Last) (First) (Middle)Mailing Address _____ Birthday _____
Yr. Mo. Day

Have you ever had a physical examination? _____

If so, when was your last one? _____ Height _____ Weight _____

Have you begun your menstrual periods? _____ If so, do you
remember the approximate date of your first period? _____
Mo. Yr.

Your age then _____

Please check below those illnesses or health conditions which
you have had and circle any which you now have.

<input type="checkbox"/> Asthma or hayfever	<input type="checkbox"/> Frequent headaches
<input type="checkbox"/> Heart condition	<input type="checkbox"/> Stomachaches
<input type="checkbox"/> Diabetes	<input type="checkbox"/> Indigestion
<input type="checkbox"/> Epilepsy	<input type="checkbox"/> Poor sleep
<input type="checkbox"/> Kidney disease	<input type="checkbox"/> Poor appetite
<input type="checkbox"/> Tuberculosis	<input type="checkbox"/> Poor hearing
<input type="checkbox"/> Measles	<input type="checkbox"/> Poor eyesight
<input type="checkbox"/> Pneumonia	<input type="checkbox"/> Other illnesses or health conditions not listed
<input type="checkbox"/> Mumps	_____
<input type="checkbox"/> Chickenpox	_____
<input type="checkbox"/> Scarlet fever or scarletina	_____
<input type="checkbox"/> Polio	_____
<input type="checkbox"/> Menstrual difficulties	_____

Do you wear glasses? _____ When did you last have

your eyes examined by a doctor? _____

How often do you see your dentist? _____

Is there any health problem which worries you? _____

APPENDIX B

Research # _____

CRITERION VERIFICATION FORM

As a part of my effort to be of more service to the young people of our community, I am presently doing advanced work at the University of Florida. Requirements for the advanced degree include a research study in which I have asked your daughter to participate.

The research involves the physical development of girls in our present-day society. This study will be kept strictly confidential and will not become a part of the school record. No names are to be used in the project.

To double-check on the accuracy of a vital part of the study, I would appreciate your answering these questions.

1. At what age did your daughter have her first menstrual period?

Age

2. Can you recall the month and year?

Month Year

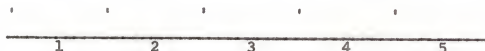
I sincerely appreciate your cooperation in this manner.

Dixie Jean Allen, Counselor

APPENDIX C

Research # _____

RATING SCALE FOR PSYCHOLOGICAL MATURITY



- | | |
|---------------------|----------------------|
| 1 - Very Immature | - extremely childish |
| 2 - Immature | - childish |
| 3 - Somewhat Mature | - somewhat adultlike |
| 4 - Mature | - adultlike |
| 5 - Very Mature | - very adultlike |

Definition of Maturity

1. Ability to see the other person's point of view--to be creative and happy rather than antagonistic or indifferent in one's relations with others
2. Objectivity toward one's self
3. Ability to select suitable, worthwhile, long term goals
4. Ability to make adjustments to situations
5. Ability to meet unexpected stresses or disappointments without experiencing emotional or physical collapse
6. Ability to give as well as receive affection
7. Ability to base opinions on sound reasoning and to stand up for them
8. Ability to appraise realistically own limitations

--Adapted from Ruth Strang (1953)

APPENDIX D

ORIGINAL RESEARCH DATA FOR 225 SUBJECTS

The original research data for this study appear on pages 70-75. The key to all abbreviations used is given below.

<u>Abbreviation</u>	<u>Explanation</u>
GP	Grade Placement
CA	Chronological Age
MA	Menarcheal Age
PM	Post-Menarche
PSM	Psychological Maturity Scale
V	Validity
FR	Family Relationships
SR	Social Relationships
ES	Emotional Stability
C	Conformity
R	Adjustment to Reality
M	Mood
L	Leadership
HPD	Health and Physical Development
FLE	Finances, Living Conditions, and Employment
SRA	Social and Recreational Activities
CSM	Courtship, Sex, and Marriage
SPR	Social-Psychological Relations
PPR	Personal-Psychological Relations
MR	Morals and Religion
HF	Home and Family
FVE	The Future: Vocational and Educational
ASW	Adjustment to School Work
CTP	Curriculum and Teaching Procedure

ORIGINAL RESEARCH DATA FOR 225 SUBJECTS

Case No.	Descriptive Data				Minnesota Counselling Inventory										Money Problem Check List										Total				
	GP	CA	MA	PM	PHS Total Scores	V FR					ES C R M L					HPD	FILE	SBA	CSH	Frequency Scores						HF	FVE	ASV	CTP
						SR	ES	C	R	M	L	SPR	PPR	MR															
1	8	166	134	32	4	61	50	52	42	50	47	54	48	1	0	1	5	0	1	5	0	1	1	2	0	5	3	2	18
2	12	215	156	59	12	51	60	64	55	44	49	43	61	5	7	5	5	5	6	3	7	10	11	8	3	7	7	50	
3	12	224	160	64	12	46	72	63	68	69	63	56	70	6	6	4	12	11	9	13	9	3	17	17	3	7	85		
4	12	238	173	65	7	46	42	65	75	42	58	60	67	6	8	4	2	9	16	3	12	1	7	6	7	6	104		
5	12	218	166	52	13	46	59	46	65	52	56	60	65	4	2	1	10	4	5	8	10	2	2	5	6	56			
6	10	184	130	54	9	46	55	47	57	59	45	51	52	0	1	0	3	3	8	7	9	14	2	2	2	2	51		
7	10	186	136	50	10	41	67	51	50	52	50	54	60	1	1	1	3	2	3	0	0	1	0	3	4	0	15		
8	9	177	155	22	9	41	39	53	58	47	47	58	56	0	2	2	0	0	0	0	0	1	0	3	4	7	39		
9	9	178	161	17	8	36	47	41	54	57	47	37	37	2	2	0	4	6	3	2	7	4	7	2	10	76			
10	9	189	129	60	6	36	50	45	63	61	57	43	56	4	10	7	7	12	9	5	2	40	1	2	9	86			
11	9	189	156	33	6	41	74	63	68	73	71	67	71	4	5	1	3	10	5	3	14	6	4	9	71				
12	10	194	178	30	11	46	78	61	62	64	59	68	68	4	10	7	3	10	5	3	10	3	2	11	1	27			
13	9	175	154	25	8	51	46	51	36	47	42	38	48	4	7	3	3	10	9	3	0	0	1	5	9	3	43		
14	9	172	124	42	10	41	50	71	61	44	45	58	72	3	0	2	6	2	6	3	3	3	3	3	3	23			
15	12	211	180	31	11	51	52	44	58	52	45	38	34	0	1	0	2	6	6	3	7	7	6	2	4	7	1	49	
16	10	199	120	79	9	61	39	39	42	45	38	34	31	0	4	3	2	6	6	3	7	7	6	0	7	1	11		
17	10	211	152	58	10	46	75	45	65	71	65	56	54	1	2	0	0	0	0	1	1	2	2	2	0	3	2	15	
18	9	175	152	23	9	56	43	39	40	52	39	45	50	1	1	2	3	10	9	8	8	2	1	0	3	2	5	92	
19	9	177	171	6	7	36	39	58	46	43	44	47	52	1	1	2	0	3	0	0	2	1	2	0	3	2	15		
20	9	175	134	41	12	46	70	39	53	54	67	49	46	12	7	9	17	10	9	8	8	2	5	5	5	54			
21	8	184	167	17	7	46	52	41	54	64	40	50	46	4	5	2	8	5	3	7	6	1	8	5	5	123			
22	9	187	128	59	7	41	70	55	57	68	60	58	54	12	11	15	8	12	15	6	13	10	17	4	2	29			
23	10	193	156	37	11	41	39	42	39	41	40	40	46	1	5	1	3	4	5	12	6	10	2	8	5	68			
24	8	162	140	22	7	56	68	50	73	75	75	78	46	10	3	3	8	3	8	7	4	3	9	8	58				
25	9	175	141	34	11	41	47	50	51	50	49	58	50	6	1	6	1	12	7	0	8	0	2	2	1	48			
26	9	176	142	34	11	46	39	51	50	47	38	56	41	5	3	11	4	5	9	7	4	5	2	4	6	1	52		
27	9	200	133	67	12	62	41	59	42	56	55	39	49	5	3	9	12	7	0	8	0	2	2	4	6	10	4	61	
28	11	200	133	67	12	56	43	49	40	44	45	45	34	3	9	7	10	6	3	13	9	5	5	5	13	10	88		
29	10	189	155	34	12	41	66	53	54	54	57	51	58	7	6	7	3	5	4	4	4	1	2	5	18	10	96		
30	10	194	142	52	14	51	46	37	53	47	38	37	46	3	9	7	3	5	4	4	1	2	1	3	15	13	34		
31	10	196	149	47	8	46	47	45	44	54	50	44	47	10	12	13	15	14	16	13	10	3	2	15	13	10	96		
32	32	183	135	78	13	46	46	45	45	45	45	45	45	3	1	1	3	2	2	4	5	2	3	2	3	2	42		
33	32	183	135	78	13	46	46	45	45	45	45	45	45	3	1	1	3	2	2	4	5	2	3	2	3	2	42		
34	11	207	127	65	13	56	39	38	40	49	43	47	53	4	3	5	5	2	0	3	1	2	3	2	3	2	24		
35	11	207	127	65	13	56	39	38	40	49	43	47	53	4	3	5	5	2	0	3	1	2	3	2	3	2	24		
36	10	186	163	21	8	51	46	42	53	45	49	43	47	2	1	1	0	2	0	3	1	2	3	2	3	2	25		
37	10	186	163	21	8	51	46	42	53	45	49	43	47	2	1	1	0	2	0	3	1	2	3	2	3	2	25		
38	12	210	153	57	9	41	55	48	71	66	64	45	53	1	3	0	3	0	7	6	3	3	4	4	9	4	46		

Case No.	Descriptive Data					Minnesota Counseling Inventory										Mooney Problem Check List										Total				
	GP	CA	MA	PM	PMS	Total Scores					V	FR	SA	ES	C	A	M	L	HPD	FLE	SRA	CSN	SPR	PPR	MR		HF	FVE	ASW	CTA
	Months					Standard Scores					Frequency Scores					Frequency Scores					Frequency Scores						Frequency Scores			
39	10	200	157	43	9	56	66	46	63	52	64	58	54	10	7	4	6	3	7	9	8	11	6	18	13	99				
40	12	220	166	54	14	41	41	38	50	52	45	45	43	5	3	3	3	3	3	3	3	3	3	3	3	35				
41	12	212	159	53	12	41	45	35	48	54	43	32	43	5	6	0	0	0	0	0	0	0	0	0	0	35				
42	12	215	150	65	12	41	43	37	39	44	48	32	34	2	1	0	0	0	0	0	0	0	0	0	0	30				
43	12	187	173	14	7	41	38	53	54	54	49	56	52	2	1	0	0	0	0	0	0	0	0	0	0	30				
44	11	203	158	45	7	67	39	42	33	37	38	45	43	4	1	1	1	1	1	1	1	1	1	1	1	21				
45	12	231	124	107	9	51	48	42	49	64	58	45	49	2	0	0	0	0	0	0	0	0	0	0	0	26				
46	5	173	167	6	6	56	42	60	55	43	59	58	50	3	4	9	9	5	9	3	3	12	4	6	35					
47	10	196	142	25	12	41	52	46	38	54	55	32	41	11	2	2	2	2	2	2	2	2	2	2	2	80				
48	10	196	123	25	12	31	47	40	44	41	42	48	52	4	1	0	0	0	0	0	0	0	0	0	0	29				
49	11	206	162	44	14	61	43	33	39	45	38	45	35	2	2	2	2	2	2	2	2	2	2	2	2	17				
50	11	206	162	44	14	61	43	33	39	45	38	45	35	2	2	2	2	2	2	2	2	2	2	2	2	46				
51	8	169	162	7	6	46	38	38	39	40	32	33	33	2	2	2	2	2	2	2	2	2	2	2	2	57				
52	8	188	156	32	9	46	59	65	57	56	58	73	56	2	2	2	2	2	2	2	2	2	2	2	2	20				
53	8	154	137	17	9	41	52	45	50	43	64	45	39	2	1	0	0	0	0	0	0	0	0	0	0	29				
54	8	166	154	12	10	46	38	49	40	41	38	43	46	1	0	5	4	0	2	4	0	6	3	1	2	17				
55	8	163	131	32	9	51	42	63	43	31	40	45	61	4	2	4	1	1	1	1	1	1	1	1	1	8				
56	8	171	138	33	9	51	42	63	43	31	40	45	61	4	2	4	1	1	1	1	1	1	1	1	1	26				
57	8	164	147	17	7	41	48	68	69	52	66	60	73	6	1	2	5	3	4	10	19	10	7	5	1	37				
58	8	171	155	16	10	56	38	44	55	45	49	47	37	1	2	5	3	4	10	19	10	7	5	1	1	32				
59	8	170	134	30	8	41	58	44	65	59	62	65	56	5	5	3	4	10	19	10	7	5	1	1	1	77				
60	8	170	144	26	12	41	41	42	53	54	46	47	37	1	2	0	0	0	0	0	0	0	0	0	0	30				
61	8	170	144	26	12	41	41	42	53	54	46	47	37	1	2	0	0	0	0	0	0	0	0	0	0	32				
62	8	167	164	3	10	46	47	51	44	38	54	51	46	4	1	2	5	3	4	10	19	10	7	5	1	37				
63	8	167	137	30	9	41	64	49	68	59	57	51	46	5	3	3	6	11	14	7	9	4	3	3	1	83				
64	8	168	134	34	10	51	39	42	39	43	39	49	46	4	1	2	0	0	0	0	0	0	0	0	0	28				
65	8	182	148	14	10	51	39	42	39	43	39	49	46	4	1	2	0	0	0	0	0	0	0	0	0	28				
66	8	165	146	19	11	56	37	41	43	38	45	47	31	1	2	4	7	6	8	4	3	7	5	5	2	44				
67	11	211	154	17	8	41	70	52	61	69	77	50	59	6	10	14	10	10	10	10	10	10	10	10	10	51				
68	10	212	172	41	7	51	69	50	62	56	78	71	69	2	8	8	6	8	6	8	6	8	6	8	6	72				
69	10	212	172	41	7	51	69	50	62	56	78	71	69	2	8	8	6	8	6	8	6	8	6	8	6	110				
70	11	212	172	41	7	51	69	50	62	56	78	71	69	2	8	8	6	8	6	8	6	8	6	8	6	110				
71	10	192	152	63	13	51	50	43	48	43	43	45	51	3	0	3	0	3	0	3	0	3	0	3	0	3	16			
72	12	212	162	32	10	51	20	40	39	39	43	45	51	3	0	3	0	3	0	3	0	3	0	3	0	3	16			
73	12	217	182	32	10	41	46	77	42	51	51	50	59	3	0	3	0	3	0	3	0	3	0	3	0	3	34			
74	8	193	168	25	12	75	59	42	45	68	57	56	66	5	8	6	3	2	7	4	0	0	0	0	0	27				
75	12	210	140	69	11	62	43	45	68	57	56	66	66	9	3	2	0	3	2	7	4	0	0	0	0	34				
76	8	167	145	22	8	41	43	55	51	36	59	56	46	5	8	5	3	2	7	4	0	0	0	0	0	17				
77	9	174	138	36	7	41	44	74	61	52	66	51	66	10	4	5	8	5	8	5	8	5	8	5	8	100				
78	9	173	137	36	7	36	64	59	78	67	79	62	66	5	5	3	1	4	5	3	2	0	0	0	0	85				
79	8	175	113	62	7	36	64	59	78	67	79	62	66	5	5	3	1	4	5	3	2	0	0	0	0	13				
80	9	173	142	31	8	41	46	46	50	50	60	54	65	2	2	0	3	2	7	4	0	0	0	0	0	104				
81	11	200	141	59	11	62	41	50	40	34	45	54	49	2	0	2	8	2	0	2	2	2	2	2	2	2	58			

Case No.	Descriptive Data				Minnesota Council Inventory										Money Problem Check List					Total							
	GP	CA	MA	PH	PMS	Total Score	V	FR	SR	ES	R	H	L	HPD	FLE	SRA	CSH	Frequency Scores									
																		SPR	PPR		MR	HF	FVE	ASW	CIP		
82	8	183	159	24	4	31	54	41	50	43	47	47	41	10	4	1	13	4	6	9	3	8	13	1	72		
83	9	172	136	36	4	9	31	54	73	77	52	76	69	2	7	7	5	15	16	15	5	10	14	18	120		
84	8	170	166	4	6	11	44	44	38	50	41	36	52	1	8	3	4	7	4	3	6	3	5	8	5	46	
85	9	172	139	33	11	36	51	57	45	51	38	52	47	3	2	1	3	5	5	3	1	3	13	7	53	45	
86	9	176	159	17	9	46	51	47	50	50	38	52	47	2	1	1	3	5	5	3	0	1	3	2	0	18	
87	12	216	134	82	12	67	36	46	45	49	45	45	47	2	2	1	2	6	4	5	0	0	6	3	2	40	
88	10	191	173	18	6	46	44	53	55	54	61	51	58	3	1	2	0	2	3	4	1	2	4	6	3	45	
89	12	210	178	32	14	46	49	48	49	47	53	56	57	1	3	1	0	6	3	5	1	0	2	4	2	23	
90	10	185	179	6	10	56	44	42	40	52	39	43	46	6	5	4	4	2	2	4	3	1	5	4	4	25	
91	8	179	174	5	7	36	60	51	58	61	60	47	44	6	0	4	4	0	3	7	1	1	5	4	4	39	
92	8	169	169	0	9	75	38	52	39	38	39	43	44	1	5	3	2	4	3	3	0	3	5	4	4	39	
93	12	208	138	69	12	57	42	57	56	47	41	56	55	5	5	2	8	3	7	3	3	0	3	5	4	30	
94	12	217	148	69	12	36	53	55	56	42	52	52	53	9	0	4	4	5	2	5	1	2	3	8	4	35	
95	10	204	176	28	9	41	48	40	54	47	49	36	52	1	8	2	4	5	8	0	1	4	0	10	4	49	
96	9	191	165	26	7	51	39	45	48	50	42	47	48	2	0	4	4	5	5	3	1	2	3	8	4	49	
97	9	176	156	20	9	61	39	41	35	41	40	47	37	0	0	6	0	3	5	3	1	4	2	3	2	27	
98	9	175	168	8	5	51	75	65	70	64	72	71	62	7	12	9	3	14	9	5	3	5	6	15	10	111	
99	9	175	171	4	7	41	60	62	64	72	64	64	62	66	1	5	13	7	20	17	8	10	3	16	10	127	
100	10	199	168	31	7	6	36	62	64	72	64	64	62	66	1	5	13	7	20	17	8	10	3	16	10	127	
101	8	185	174	11	4	41	60	60	74	71	72	71	62	9	14	12	16	10	8	12	17	2	17	2	17	10	127
102	11	206	159	47	13	56	48	62	46	44	44	47	49	5	4	4	4	3	1	3	0	1	7	0	4	32	
103	8	177	132	45	7	41	51	53	58	54	60	70	45	5	4	6	4	3	4	5	1	3	5	3	3	48	
104	11	200	151	49	11	51	45	45	42	46	45	45	45	2	8	1	4	3	2	2	0	1	11	4	4	30	
105	9	178	157	21	11	56	38	46	46	38	41	38	46	2	5	8	3	10	4	0	4	2	4	2	6	35	
106	8	167	140	27	6	70	52	70	68	68	72	91	73	4	4	5	8	3	2	4	0	0	2	7	4	35	
107	8	211	180	31	7	41	50	63	58	57	51	58	60	1	4	6	8	3	2	4	0	0	2	7	4	35	
108	8	186	168	18	7	56	62	61	53	59	59	62	64	4	4	6	8	3	2	4	0	0	2	7	4	35	
109	8	197	169	28	8	41	75	64	78	71	89	71	68	4	4	6	8	3	2	4	0	0	2	7	4	35	
110	12	212	166	46	10	56	46	40	39	39	45	34	43	3	12	10	11	5	6	6	3	6	2	15	5	71	
111	9	172	139	33	10	41	43	46	53	43	46	54	52	3	12	10	11	5	6	6	3	6	2	15	5	71	
112	10	189	143	46	11	46	74	46	55	68	66	49	56	3	12	10	11	5	6	6	3	6	2	15	5	71	
113	11	199	146	53	11	46	59	75	63	59	58	67	76	3	12	10	11	5	6	6	3	6	2	15	5	71	
114	10	207	174	93	11	41	44	68	76	52	52	65	56	3	12	10	11	5	6	6	3	6	2	15	5	71	
115	8	165	138	27	8	41	50	49	46	54	50	38	39	5	5	2	4	5	8	0	3	7	0	3	1	18	
116	9	177	150	27	9	46	48	43	57	64	50	45	41	5	5	2	4	5	8	0	3	7	0	3	1	18	
117	9	182	157	25	9	36	52	63	61	54	65	45	60	7	1	10	7	21	20	9	5	1	19	14	7	49	
118	11	198	135	48	13	46	44	47	58	45	47	45	44	3	2	10	7	8	6	6	4	6	1	19	14	7	49
119	12	213	158	33	8	51	67	56	59	69	67	43	59	6	5	5	3	6	4	6	4	6	1	19	14	7	49
120	11	198	155	37	10	46	59	61	61	62	66	50	65	5	5	3	2	6	4	6	4	6	1	19	14	7	49
121	12	213	158	33	8	31	77	66	75	79	77	73	69	2	4	2	10	6	3	5	9	6	8	7	6	89	
122	11	197	164	35	8	46	81	53	59	56	74	63	50	0	1	8	7	15	16	4	3	5	9	6	8	7	89
123	12	209	164	35	8	46	81	53	59	56	74	63	50	0	1	8	7	15	16	4	3	5	9	6	8	7	89
124	10	209	150	59	9	36	69	59	78	81	67	71	45	9	6	6	14	20	18	17	10	18	15	14	7	147	

Case No.	Descriptive Data										Minnesota Counselor Test Inventory										Money Problem Check List										Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	GP	CA	MA	PM	PMS	Total Scores	V	Standard Scores					M	L	HPD	FLE	SIA	CSH	Frequency Scores					HF	FVE	ASV	GTP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
								FR	SR	ES	C	R							SPR	PPR	MR	Frequency Scores																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

Case No.	Descriptive Data				Minnesota Counseling Inventory										Money Problem Check List										Total				
	GP	CA	MA	PM	PMS	V					Standard Scores					MPD	FLE	SRA	CSH	Frequency Scores									
						FR	SR	ES	C	R	H	L	SPR	PFR	MR					HF	FVE	ASW	CTP						
168	9	184	173	11	7	51	50	42	63	47	57	60	37	4	4	0	4	0	4	4	5	7	5	5	1	13	1	49	
169	10	211	178	33	8	51	48	55	53	38	45	54	60	1	4	2	6	6	4	4	5	0	2	0	1	6	1	38	
170	10	185	163	22	11	51	44	53	44	38	45	54	54	3	3	8	5	11	5	3	6	4	2	2	2	8	2	29	
171	8	172	141	31	18	46	50	52	50	50	52	47	54	5	5	8	3	9	3	9	3	6	4	1	4	9	5	91	
172	8	180	156	24	12	46	52	61	25	50	60	62	66	4	5	9	12	8	1	4	0	1	7	0	5	2	26	47	
173	8	162	140	22	9	46	76	69	66	66	76	71	68	5	4	4	2	1	2	4	0	4	7	4	1	6	6	108	
174	8	183	133	50	8	66	64	38	68	66	76	71	68	9	4	2	3	2	3	17	11	10	14	4	4	2	13	37	
175	11	199	167	32	10	41	52	45	68	66	72	41	51	9	4	2	3	2	2	7	2	6	6	6	6	9	2	35	
176	11	207	174	33	9	51	64	47	58	66	63	77	62	6	6	2	2	2	2	7	2	6	6	6	6	9	10	75	
177	11	208	169	39	9	46	55	56	58	59	65	58	65	3	3	10	8	6	7	6	10	3	3	6	1	2	5	59	
178	12	222	175	47	11	41	63	67	48	61	77	62	66	16	17	14	15	16	16	10	3	3	5	12	10	8	5	165	
179	8	172	152	20	8	46	64	52	61	73	51	65	54	0	1	0	6	1	1	10	3	2	4	2	0	3	1	21	
180	9	176	140	36	6	46	60	47	55	57	54	62	56	2	2	8	6	7	6	10	3	3	6	1	2	5	5	77	
181	8	171	160	11	8	46	60	47	55	57	54	62	56	3	3	10	8	6	7	6	10	3	3	6	1	2	5	59	
182	8	185	126	59	7	41	47	43	63	68	73	67	64	16	17	14	15	16	16	10	3	3	5	12	10	8	5	80	
183	8	178	155	23	4	36	64	63	68	73	67	64	64	0	1	0	6	1	1	10	3	2	4	2	0	3	1	21	
184	8	163	158	5	9	51	39	40	36	50	42	38	44	1	1	0	6	1	1	10	3	2	4	2	0	3	1	21	
185	8	162	152	10	9	56	55	41	38	57	51	49	44	1	1	0	6	1	1	10	3	2	4	2	0	3	1	21	
186	8	167	149	18	8	41	46	42	38	45	47	34	39	1	1	0	6	1	1	10	3	2	4	2	0	3	1	21	
187	8	171	158	13	10	41	70	51	66	64	67	56	48	8	7	9	10	8	6	10	3	2	4	2	0	3	1	21	
188	10	187	142	45	11	41	74	35	50	75	61	51	44	3	5	4	5	4	5	8	11	17	15	1	4	11	102	77	
189	10	192	181	11	7	41	58	44	62	64	64	72	78	61	6	4	8	12	9	6	14	4	10	5	15	4	91	51	
190	12	222	196	14	10	51	62	62	74	64	72	78	61	6	4	8	12	9	6	14	4	10	5	15	4	9	15	102	
191	8	170	156	14	7	41	55	43	55	59	64	56	48	13	12	19	14	4	5	6	5	5	4	4	4	5	16	4	
192	10	205	159	46	8	36	59	65	74	57	79	67	58	4	3	5	3	7	4	4	3	0	5	1	0	2	72	32	
193	10	191	121	70	9	46	64	49	54	61	51	40	50	10	7	8	11	6	5	4	3	0	5	1	4	4	5	35	
194	8	169	164	5	7	41	62	52	59	59	65	54	54	3	4	7	6	2	0	6	5	5	1	4	4	4	5	62	
195	8	167	146	21	8	46	54	52	39	59	57	49	54	3	6	6	6	6	6	6	6	5	5	5	7	5	62		
196	8	176	119	57	7	46	44	41	40	40	42	40	39	5	6	6	6	6	6	6	6	5	5	5	7	5	62		
197	8	165	146	19	7	46	42	42	40	40	42	40	39	5	6	6	6	6	6	6	6	5	5	5	7	5	62		
198	12	210	167	43	8	31	73	65	74	67	67	57	55	12	13	25	29	28	24	15	20	17	25	26	2	2	234	4	
199	11	203	157	46	9	41	60	56	62	81	67	67	55	6	6	6	6	6	6	6	6	5	5	5	3	6	6	83	61
200	8	181	150	31	5	31	74	56	62	71	64	67	56	2	5	0	0	0	0	14	9	7	3	0	2	2	2	16	21
201	11	207	150	57	9	46	45	38	45	49	46	34	34	6	6	6	6	6	6	6	6	5	5	5	3	6	6	66	49
202	11	206	154	52	7	44	64	51	56	52	47	39	31	1	3	1	0	0	0	14	9	7	3	0	2	2	2	21	17
203	11	201	191	10	13	36	46	67	50	52	59	58	55	4	1	5	0	1	5	0	14	9	7	3	0	4	13	6	21
204	11	200	175	25	8	46	49	39	42	52	43	36	33	3	0	1	0	1	1	2	2	6	3	1	0	4	13	6	21
205	11	203	168	35	11	56	41	35	40	49	45	34	34	3	0	1	0	1	1	2	2	6	3	1	0	4	13	6	21
206	11	191	134	57	13	51	46	47	43	44	49	43	39	0	1	4	1	4	1	2	2	6	3	1	0	4	13	6	21
207	11	205	146	59	13	46	45	46	43	44	49	43	39	0	1	4	1	4	1	2	2	6	3	1	0	4	13	6	21
208	11	197	151	46	13	46	45	46	43	44	49	43	39	0	1	4	1	4	1	2	2	6	3	1	0	4	13	6	21
209	11	196	173	23	14	41	60	42	59	56	53	43	39	5	1	2	3	5	8	9	11	1	2	2	2	2	2	28	46
210	11	198	139	59	13	51	39	48	43	47	51	43	47	1	1	6	7	3	3	9	13	4	7	0	0	4	2	70	16

Case No.	Descriptive Data				Minnesota Counseling Inventory							Money Problem Check List												Total	
	GP	CA	MA	PM	PMS	Total Scores	Standard Scores						Frequency Scores												
							V	FR	ES	C	R	H	L	HPD	FLE	SRA	CSH	Frequency Scores							
																		SPR	PPR	MR	HF	FVE	ASW		CTP
211	11	197	144	53	9	51	42	44	48	47	48	43	47	1	0	0	5	2	5	0	2	3	7	4	29
212	8	163	137	26	12	41	43	54	48	45	47	56	47	6	2	2	1	0	8	6	3	2	0	6	40
213	11	207	132	75	9	51	45	61	43	42	47	54	57	2	2	1	0	2	3	2	10	0	9	13	34
214	8	177	138	39	7	46	56	49	66	65	69	62	58	9	10	10	9	2	7	2	0	5	18	3	99
215	8	171	144	27	8	51	41	49	47	43	49	47	54	5	1	5	2	4	2	2	2	3	6	8	43
216	11	219	161	58	8	36	52	66	68	61	62	67	59	13	1	13	6	16	14	10	13	15	11	6	159
217	8	195	153	42	7	41	71	57	73	75	80	69	62	8	20	10	17	20	23	13	16	15	11	0	177
218	8	162	140	22	5	46	43	60	35	43	42	34	44	1	0	3	0	2	0	0	0	0	3	1	10
219	8	165	137	28	8	46	44	41	39	54	47	34	44	4	2	2	4	3	5	2	3	3	3	1	32
220	8	181	183	0	10	51	54	58	44	52	57	62	52	1	3	2	2	4	6	9	7	5	1	8	7
221	11	216	183	33	9	56	48	45	49	39	58	61	59	8	7	12	22	24	17	16	10	15	18	15	36
222	11	209	128	81	5	41	49	72	43	38	55	45	43	3	2	3	4	7	7	3	1	3	3	9	6
223	8	167	141	26	8	41	42	48	54	50	60	54	56	3	5	6	5	8	10	4	5	3	1	3	53
224	8	161	140	21	12	41	50	48	54	50	60	54	56	3	2	4	2	2	2	0	2	1	1	0	19
225	8	170	141	29	8	56	56	50	46	57	50	49	56	3	2	4	2	2	2	0	2	1	1	0	19

BIOGRAPHICAL DATA

Dixie Jean Allen was born April 14, 1927, in Malone, Florida. She moved with her family to Leesburg, Florida, in 1942 and was graduated from Leesburg High School in 1945. She received the degrees Bachelor of Science in 1949 and Master of Arts in 1955 from The Florida State University.

Miss Allen taught business education at Umatilla High School, Umatilla, Florida, from 1949-1952. She served as business teacher and later guidance director at South Broward High School in Hollywood, Florida, from 1952-1957. From 1957-1964 Miss Allen served as teacher and guidance director for Leesburg High School. During the year 1962-1963 she participated in the Guidance and Counseling Institute at the University of Florida.

Miss Allen holds membership in Phi Kappa Phi, Pi Lambda Theta, Kappa Delta Pi, Delta Kappa Gamma honorary societies. She also is a member of local, state, and national professional organizations.

Miss Allen is presently on the faculty at Lake-Sumter Junior College, Leesburg, Florida.

This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Education and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Education.

August 14, 1965

Kimball W. Ellis by MCB
Dean, College of Education

Dean, Graduate School

Supervisory Committee:

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